

REMARKS/ARGUMENTS

In the Office Action mailed on May 26, 2005, the Examiner rejected claims 1-5, 14 and 17. Claims 1-5 and 14 have been amended. Claim 17 has been canceled without prejudice or disclaimer. Claims 1 and 14 are independent. Applicants have thoroughly reviewed the outstanding Office Action including the Examiner's remarks and the references cited therein. The following remarks are believed to be fully responsive to the Office Action. All pending claims at issue are believed to be patentable over the cited references.

CLAIM REJECTIONS - 35 U.S.C. § 112

The Examiner rejected claim 17 under 35 U.S.C. § 112, first paragraph as failing to comply with the enablement requirement. In light of the amendment to the claim, Applicants hereby respectfully request that the rejection to this claim be removed.

CLAIM REJECTIONS - 35 U.S.C. § 102(b)

The Examiner rejected claims 1-3, 5 and 14 under 35 U.S.C. §102(b) as being anticipated by United States Patent No. 5,658,425 to Halman *et al.* (hereinafter referred to as "Halman"). In light of the following remarks, Applicants respectfully submit that these claims are allowable.

Initially, Applicants note that it is axiomatic that to qualify as an anticipation under Section 102, the cited reference must "bear within its four corners adequate directions for the practice of the patent invalidated." (See, for example, Dewey & Almay Chemical

Co. v. Mimex Co., Inc., 52 U.S.P.Q. 138 (2nd Cir. 1942)). Applicants respectfully submit that Halman embodies no such directions.

More particularly, Applicants respectfully submit that Halman does not disclose an etching method as presently claimed. The independent claims have been amended to clarify that the invention relates to plasma processing. The claims have been amended to explicitly state that which has been implicitly shown in the original claim language. As such, the claims have not been narrowed.

The Examiner states that Halman discloses a plasma comprising CF₄, Ar and N₂ to etch a multi-layered oxide. Halman teaches a multi-layer oxide film structure that includes a TEOS oxide film and a BPSG oxide film is etched until the TiSi_x layer at the base is exposed. *See col. 4, lines 15-24*

However, claim 1 recites, *inter alia*, generating a plasma in said airtight processing chamber for etching said etching target film, and etching an organic target film containing Si formed on the SiO₂ film until the SiO₂ film is exposed, wherein a resist is used as a mask on said etching target film. For anticipation under 35 U.S.C. §102 the reference must teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present (M.P.E.P. 706.02). Since each and every element, as set forth in the claim, is not found either expressly or inherently described as required by the M.P.E.P., Halman cannot be said to anticipate the step of etching an organic target film containing Si formed on the SiO₂ film until the SiO₂ film is exposed of the present invention as claimed.

Furthermore, the Examiner states that Halman discloses the amount of N₂ being less than the amount of CF₄ and an unlimited amount of N₂ may be used. Halman

teaches that the flow rate of N₂ should be set to 2 sccm relative to a 10 to 100 sccm flow rate range set for gas containing fluorine. See col. 4, lines 45-50

However, claim 14 recites, *inter alia*, introducing a processing gas into said airtight processing chamber, wherein said processing gas contains at least CF₄ and N₂, wherein the flow rate ratio of CF₄ and N₂ in said processing gas is essentially set within a range of $1 \leq (\text{N}_2 \text{ flow rate} / \text{CF}_4 \text{ flow rate}) \leq 4$ (i.e., the flow rate of N₂ should be set to a range of 1 to 4 times the flow rate of CF₄); generating a plasma in said airtight processing chamber for etching said etching target film, and etching an organic target film containing Si formed on the SiO₂ film until the SiO₂ film is exposed, wherein a resist is used as a mask on said etching target film. Again, Halman cannot be said to anticipate a claim reciting, among other things, steps of introducing a processing gas into said airtight processing chamber, wherein said processing gas contains at least CF₄ and N₂, wherein the flow rate ratio of CF₄ and N₂ in said processing gas is essentially set within a range of $1 \leq (\text{N}_2 \text{ flow rate} / \text{CF}_4 \text{ flow rate}) \leq 4$ (i.e., the flow rate of N₂ should be set to a range of 1 to 4 times the flow rate of CF₄); generating a plasma in said airtight processing chamber for etching said etching target film, and etching an organic target film containing Si formed on the SiO₂ film until the SiO₂ film is exposed, wherein a resist is used as a mask on said etching target film of the present invention as claimed.

In light of the foregoing arguments, withdrawal of the rejection of claims 1-3, 5 and 14 under 35 U.S.C. §102(b) as being anticipated by Halman is respectfully requested.

CLAIM REJECTIONS - 35 U.S.C. §103(a)

The Examiner rejected claim 4 under 35 U.S.C. §103(a) as being obvious over Halman in view of United States Patent No. 5,721,156 to Matsuura (hereinafter referred to as "Matsuura").

The Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. *MPEP* §2142. To establish a prima facie case of obviousness, three criteria must be met. First, there must be some suggestion or motivation, to modify the references or to combine reference teachings. Second, there must be reasonable expectation of success. Finally, the prior art must teach all the claim limitations. *MPEP* §2142. In light of the argument regarding the Halman reference, the combined references do not teach or suggest all the claim limitations of the present application.

Applicants respectfully point to the final prong of the test, which states the prior art must teach all the claim limitations. At the very least, the combined references do not teach all of the limitations of independent claims 1 and 14 because of the arguments set forth regarding the Halman reference in the anticipation section of this response.

Additionally, Applicants note that the Examiner has cited Matsuura in a rejection of those claims that include a polysiloxane layer. Matsuura discloses using polysiloxane as a source material to be used when forming the oxide film.

However, claim 4 recites, *inter alia*, wherein said organic target film containing Si is an organic polysiloxane film. In accordance with M.P.E.P. §2143.03, to establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re: Royka*, 490 F.2d 981, 180 USPQ 580

(CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re: Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494 196 (CCPA 1970). Matsuura is silent with respect to the organic target film containing Si being an organic polysiloxane film as presently claimed.

As a result, the obviousness rejection is improper and since independent claim 1 is allowable, all claims which depend from it are allowable. Moreover, Halman and Matsuura, taken alone or in combination do not support a finding of obviousness since they do not teach all the elements of the claims. Therefore, Applicants respectfully request that the rejection to claim 4 which is based on Halman and Matsuura, be removed.

CONCLUSION

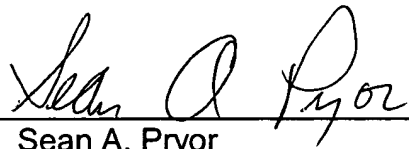
In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims. If, for any reason, the Examiner disagrees, please call the undersigned agent at 202-408-6023 in an effort to resolve any matter still outstanding before issuing another action. The undersigned agent is confident that any issue which might remain can readily be worked out by telephone.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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By: 
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